REMARKS

Reconsideration and allowance are respectfully requested. Applicants thank the Examiner for rejoining claims 14-24 (Group II) with claims 1-13 and 57-59 for examination on the merits.

Claims 1-24 and 57-59 are pending. Non-elected claims 25-36 were withdrawn from consideration by the Examiner. Applicants have canceled the non-elected claims without disclaimer or prejudice to future prosecution of that subject matter.

Applicants thank the Examiner for indicating that claim 18 would be allowable if rewritten in independent form. All other claims currently stand rejected. Applicants traverse for the reasons stated below.

35 U.S.C. 112 – Written Description

The specification must convey with reasonable clarity to persons skilled in the art that applicant was in possession of the claimed invention as of the filing date sought. See *Vas-Cath v. Mahurkar*, 19 USPQ2d 1111, 1117 (Fed. Cir. 1991). But the Patent Office has the initial burden of presenting evidence or a reason why persons of ordinary skill in the art would not have recognized such a description of the claimed invention in the original disclosure. See *In re Gosteli*, 10 USPQ2d 1614, 1618 (Fed. Cir. 1989).

Claims 1-17, 19-24 and 57-59 were rejected under Section 112, first paragraph, because it was alleged that they contain "subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention." Applicants traverse.

Applicants respectfully traverse as the specification clearly provides support for the presently claimed subject matter in compliance with the "written description" requirement of the first paragraph of 35 U.S.C. 112. The M.P.E.P. clearly states:

> To satisfy the written description requirement, a patent specification must describe the claimed invention in sufficient detail that one skilled in the art can reasonably conclude that the inventor had possession of the claimed invention. See, e.g., *Vas-Cath, Inc. v. Mahurkar*, 935 F.2d at 1563, 19 USPQ2d at 1116.

> An applicant shows possession of the claimed invention by describing the claimed invention with all of its limitations using such descriptive means as words, structures, figures, diagrams, and formulas that fully set forth the claimed invention. *Lockwood v. American Airlines, Inc.*, 107 F.3d 1565, 1572, 41 USPQ2d 1961, 1966 (Fed. Cir. 1997). Possession may be shown in a variety of ways including description of an actual reduction to practice, or by showing that the invention was "ready for patenting" such as by the disclosure of drawings or structural chemical formulas that show that the invention was complete, or **by describing distinguishing identifying characteristics** sufficient to show that the applicant was in possession of the claimed invention. See, e.g., *Pfaff v. Wells Electronics, Inc.*, 525 U.S. 55, 68, 119 S.Ct.304, 312, 48 USPQ2d 1641, 1647 (1998); *Eli Lilly*, 119 F.3d at 1568, 43 USPQ2d at 1406; *Amgen, Inc. v. Chugai Pharmaceutical*, 927 F.2d 1200, 1206, 18 USPQ2d 1016, 1021 (Fed. Cir. 1991) (one must define a compound by "whatever characteristics sufficiently distinguish it").

M.P.E.P. § 2163(I), emphasis added.

The claimed invention is directed to a single protocol for extraction of markers from two or more organisms, which are present in a sample, that uses nitrous acid as the extraction reagent. See specification at page 8, lines 3-7. Prior to Applicants' invention, nitrous acid was used only to extract carbohydrate markers of Streptococcal bacteria because it was believed that nitrous acid would destroy protein, lipid, and nucleic acid markers. See specification at page 2, line 7, to page 3, line 13. Consequently, it was believed that, for example, in response to a patient's complaint about her sore throat, two separate samplings, extractions, and tests would be required: one for viral infection and another for Streptococcal infection. Ironically, the Examiner repeats this belief in the Action at pages 6 and 9, while Applicants' specification teaches that a single processing of one sample is sufficient for the tests.

The specification teaches that a variety of markers (pages 8-9) from a broad spectrum of organisms (page 11) can be used in methods of the claimed invention. The specific markers include many that are well known to the skilled artisan and routinely measured in conventional single assay formats. The extraction reagents used with Applicants' invention are described in the specification at pages 23-26. The detailed descriptions of suitable assay methods, extraction reagents, and biomarker targets fully support the breadth of the pending claims and clearly indicate to a skilled artisan that Applicants were in possession of the claimed invention. Finally, the specification at

pages 29-39 provides a number of working examples that demonstrate the invention was reduced to practice for a specific panel of assays.

In asserting a "written description" rejection, the initial burden of proof rests with the Examiner. Applicants urge that the Examiner has failed to meet the initial burden of proof. The M.P.E.P. clearly states:

> The inquiry into whether the description requirement is met must be determined on a case-by-case basis and is a question of fact. *In re Wertheim*, 541 F.2d 257, 262, 191 USPQ 90, 96 (CCPA 1976). A description as filed is presumed to be adequate, unless or until sufficient evidence or reasoning to the contrary has been presented by the examiner to rebut the presumption. See, e.g., *In re Marzocchi*, 439 F.2d 220, 224, 169 USPQ 367, 370 (CCPA 1971). The examiner, therefore, must have a reasonable basis to challenge the adequacy of the written description. **The examiner has the initial burden of presenting by a preponderance of evidence why a person skilled in the art would not recognize in an applicant's disclosure a description of the invention defined by the claims.** *Wertheim*, 541 F.2d at 263, 191 USPQ at 97.

M.P.E.P. § 2163.04, emphasis added.

Applicants submit that the Examiner's suggestion on page 5 of the Action to limit claims to markers of the specific organisms described in the working examples of the specification contradicts proper legal standards. M.P.E.P. §§ 2163-2163.07 sets forth the proper standard for determining whether an applicant has satisfied the "written description" requirement of the first paragraph of 35 U.S.C. 112. A person of skill in the art would readily recognize from the original disclosure that Applicants invented the presently claimed subject matter. The function of this requirement is to ensure that a patent is granted to inventors who had possession, as of the filing date of the application, of the specific subject matter later claimed by them; how the specification accomplishes this is not material. *In re Smith*, 178 USPQ 620 (CCPA 1973). Therefore, the test for determining whether the "written description" requirement under the first paragraph of 35 U.S.C. § 112 is satisfied is whether the originally-filed specification reasonably conveys to a person having ordinary skill that Applicants had possession of the subject matter later claimed. *In re Kaslow*, 217 USPQ 1089 (Fed. Cir. 1983). See also M.P.E.P. § 2163.02.

Favorable reconsideration is earnestly solicited.

35 U.S.C. 112 – Enablement

The Patent Office has the initial burden to question the enablement provided for the claimed invention. M.P.E.P. § 2164.04, and the cases cited therein. It is incumbent upon the Patent Office, whenever a rejection on this basis is made, to explain why it doubts the truth or accuracy of any statement in a supporting disclosure and to back up assertions of its own with acceptable evidence or reasoning which is inconsistent with the contested statement. *In re Marzocchi*, 169 USPQ 367, 370 (C.C.P.A. 1971). Specific technical reasons are always required. See M.P.E.P. § 2164.04.

Claims 1-17, 19-24 and 57-59 were rejected under Section 112, first paragraph, because it was alleged that the specification "does not reasonably provide enablement for a method of measuring a plurality of organisms (two or more) in which the organisms may be any two or more organisms, or a method of measuring any two or more markers, or a method of measuring any one marker that is viral or protein, or a method of measuring a streptococcal group-specific antigen and any viral marker." Applicants traverse.

It appears that the Examiner is requiring the presence of working examples to enable the claims. On pages 5-6 of the Action, the Examiner admitted that the claims are enabled as to the four organisms that were tested in the working examples, but she alleged that the claims are not enabled for a plurality of organisms outside of the group of organisms tested in the working examples.

Applicants urge that the Examiner applies an incorrect legal standard. Applicants submit that the "enablement" prong of the first paragraph of 35 U.S.C. § 112 requires nothing more than objective enablement. Whether this is achieved by illustrative examples or by broad terminology is of no importance. *In re Marzocchi*, 169 USPQ 367 (CCPA 1971). An assertion by the Patent Office that the enabling disclosure is not commensurate with the scope of the protection sought must be supported by evidence or reasoning substantiating the doubt so expressed. *In re Dinh-Nguyen*, 181 USPQ 46 (CCPA 1974); *In re Bowen*, 181 USPQ 48 (CCPA 1974); *In re Armbruster*, 185 USPQ 152 (CCPA 1975). Moreover, there is no requirement that Applicants provide a working

example of his invention. See *In re Strahilevitz*, 668 F.2d 1229, 1232, 212 USPQ 561, 563 (CCPA 1982). Here, working examples are provided and it would be unreasonable to require that each and every embodiment within the scope of the claims be present as a working example.

Applicants submit that the experimentation here is not undue because a skilled artisan engages in such experimentation on a routine basis. A skilled artisan would know how to select a specific marker for the one or more organisms described in the specification (see pages 8-11). A skilled artisan would also know how to tests and adjust the extraction reagents described in the specification (see pages 23-26) to produce an extraction reagent suitable for use with a desired marker combination. As admitted by the Examiner, the level of skill in the art is high and the art of assay development is mature. But no evidence is presented by the Examiner to establish that routine matters such as those described above would require undue experimentation.

The fact that some markers may be resistant to this methodology is not crucial to patentability of the present claims. Some number of non-working embodiments does not preclude patentability. Applicants urge that the level of direction and guidance provided in the specification is sufficient for a skilled artisan. The specification provides a range of concentrations for the nitrous acid extraction reagent plus a list of suitable surfactants including preferred ranges of concentrations. Finally, the working examples provide exact extraction reagent compositions suitable for extracting carbohydrate and protein markers in the same sample from four different organisms. The Examiner provides no evidence to suggest that this result, while surprising, can only be achieved with these four organisms. Applicants urge that based on the disclosure in the specification and, further in view of the high state of relevant art, a person of skill in the art will know how to set up assay optimization screen and select an extraction reagent suitable for two or more organisms in the same sample.

Ironically, the Examiner alleges on pages 6 and 9 of the Action that based on the disclosure in the specification, a person of skill in the art would not expect a nitrous acid based reagent to be able to extract any two markers or any one viral or protein marker. The Examiner's allegation, while a correct statement of the prior art before Applicants'

invention, is contradicted by the teaching in the present specification which provides a detailed description and working examples of how nitrous acid reagent can be used to extract a plurality of markers including protein viral markers.

M.P.E.P. § 2164.01(a) enumerates a number of factors for determining whether experimentation is undue. Applicants urge that after considering all of these factors, the experimentation required for assay optimization of the claimed invention is not undue. In Applicants' specification there is considerable detail, direction, and guidance for the measurement of two or more organisms at the same time in a sample.

> Enablement is not precluded by the necessity for some experimentation such as routine screening, However, experimentation needed to practice the invention must not be undue experimentation. The key word is "undue," not "experimentation." *In re Wands,* 858 F.2d 731, 8 USPQ2d 1400 (Fed. Cir. 1988).
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> The test is not merely quantitative, since a considerable amount of experimentation is permissible, if it is merely routine, or if the specification in question provides a reasonable amount of guidance with respect to the direction in which the experimentation should proceed. *In re Wands*, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988) and M.P.E.P. § 2164.06.
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> The test for enablement is whether one reasonably skilled in the art to make or use the invention from the disclosure in the patent coupled with information known in the art without undue experimentation. A patent may be enabling even though some experimentation is necessary. *United States v. Telectronics, Inc.*, 857 F.2d 778, 8 USPQ2d 1217 (Fed. Cir. 1988).
>
> Favorable reconsideration is earnestly solicited.

35 U.S.C. 102 – Novelty

A claim is anticipated only if each and every limitation as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of Calif.*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is claimed. See *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

> Claim 1 of the subject application is directed to:
>
> A method for measuring a plurality of different organisms in a sample comprising:

(a) contacting said sample with an extraction reagent comprising nitrous acid, thereby forming an assay composition; and
(b) measuring, in said assay composition, markers of said plurality of organisms so as to measure said plurality of different organisms.

Claims 1-4, 7-11, 13 and 57-58 were rejected under Section 102(b) as allegedly anticipated by Bogart et al. (U.S. Patent 5,494,801; hereinafter "Bogart"). Applicants traverse.

It appears that the disclosure of Bogart is misinterpreted in the Action. Contrary to claim 1, Bogart teaches a method for measuring one organism at a time. Example 2 of Bogart, although cited for multiplexing by the Examiner, clearly describes "plates . . . were used to prepare pure, isolated colonies of each organism" (col. 13, lines 14-15). The plating of single colonies confines the invention of Bogart to contacting a sample containing one pure collection of organisms (i.e., a single species) with the extraction reagent. Nothing in the disclosure of Bogart suggests that his experiment could be multiplexed. Instead, Bogart teaches that "conditions are fairly specific for GBS" (col. 13, lines 46-48) and, thus, not only does not disclose the claimed invention but in fact teaches away from using a single extraction condition for measuring multiple organisms in a sample.

Claims 1-4, 7-8, 10-11, 13 and 57 were rejected under Section 102(b) as allegedly anticipated by Slifkin & Interval (J. Clin. Microbiol. 12:541-545, 1980; hereinafter "Slifkin"). Applicants traverse.

The method of Sifkin is similar to Bogart's method because both use colonies of isolated single organism species for contacting with the extraction reagent: "Isolated colonies of beta-hemolytic streptococci from each primary plate," "single colonies were obtained," and "single, well-isolated colonies were inoculated" (Sifkin, page 541, right-hand column). The assay compositions of Bogart and Sifkin contain a single organism species reacted with the extraction reagent. Therefore, the cited references do not teach or suggest "measuring, in said assay composition, markers of said plurality of organisms so as to measure said plurality of different organisms" (see Claim 1).

Consequently, at least one of the limitations of Claim 1 is missing in the disclosure of Bogart and Sifkin. Furthermore, neither reference discloses (i) a method

for measuring in a single sample a marker from a gram-positive bacterium and a marker from a virus, fungus, or gram-negative bacterium (e.g., as in Claims 5, 14 and 59); (ii) the measurement of multiple markers using a multiplexed assay format (as in Claims 10 and 21).

Therefore, the withdrawal of the 35 U.S.C. 102 rejections is earnestly solicited.

Conclusion

Having fully responded to all of the pending objections and rejections contained in this Office Action, Applicants submit that the claims are in condition for allowance. If the Examiner finds that an interview would be useful to address any issues not successfully traversed by this response, Applicants respectfully request scheduling of such interview.

Respectfully submitted,

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